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COGNITIVE LOAD AND COMPENSATION STRATEGIES OF BIPA LEVEL 1 LEARNERS IN TEXT BASED WRITING

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ABSTRACT

This study examines the cognitive load and compensation strategies used by BIPA Level 1 learners in producing text-based writing, focusing on how cognitive constraints shape phonological, lexical, phrasal, and syntactic errors. The purpose of this research is to analyze the intrinsic, extraneous, and germane cognitive loads reflected in leaners' written errors and to identify the compensation strategies employed to overcome linguistic limitations. This research analyzed based on cognitive load theory (Sweller, 1994) and compensation strategies (Tarone, 1983) and adopts a qualitative descriptive method involving nine BIPA Level 1 learners from Japan, Sweden, and Armenia. The data consist of descriptive texts ("Myself") and procedural texts ("How to Make Favorite Foods"), collected through documentation and analyzed using the interactive model of Miles, Huberman, and Saldana (2014), which includes data reduction, data display, and conclusion drawing. The findings show that the highest cognitive load appears at the phoneme–orthography level, where learners struggle to map Indonesian phonological input into correct graphemic output, resulting in frequent phoneme substitutions, omissions, or distortions. Lexical and syntactic errors further confirm intrinsic load arising from complex forms, unfamiliar structures, and L1 interference. Extraneous load emerges from task complexity, incomplete understanding of Indonesian conventions, and performance pressure during writing. Meanwhile, germane load is visible in productive errors where learners attempt to build new linguistic schemas, such as approximating unfamiliar phonological forms or constructing new noun phrases. Three dominant compensation strategies were identified: approximation, literal translation, and word coinage, indicating learners' efforts to maintain communicative flow despite limited proficiency.

Keywords: *BIPA learners; cognitive load; compensation strategies; psycholinguistic; writing errors*

Second language acquisition is one of the Psycholinguistic studies that functions to study language processed in the human mind, including language comprehension and production. Second language acquisition involves a complex set of cognitive processes where learners must selectively attend to input, process it in working memory, and eventually integrate new linguistic forms into their long-term mental representation (Hummel, 2020:62). Second language acquisition is a cognitive journey where the learner's ability to produce output is constrained by their internal processing capacity and the quality of interaction they engage in (Ortega, 2019:88)

Second language acquisition for BIPA learners is not just about mastering rules, but a mental process of constructing meaning through cultural input and communicative interaction in a new environment (Suyitno, 2017:124). Explains that BIPA learning often follows a second language acquisition pattern where learners tend to transfer their mother tongue patterns into Indonesian language structures (Kusmiatun, 2016:20). BIPA Level 1 learners are at an early stage, where they are still struggling to build the foundations of phonology, morphology, and syntax. At this stage, when learners are asked to produce writing (language products), they face a double cognitive load: thinking about ideas or content and simultaneously processing the rules of the target language.

This high cognitive load often triggers the use of compensatory strategies, which manifest as various types of errors in writing. The writing error data provided, which covers the levels of phonemes, words, phrases, and sentences, indicates systematic difficulties in transferring sounds to writing (phonemes) and constructing correct grammatical structures (words/phrases/sentences). According to Sweller (1994:295), cognitive load refers to the amount of information that working memory must process at any one time. The higher the load, the greater the likelihood of language errors, especially in written production.

According to Sweller (1994:295), cognitive load consists of: Intrinsic load– the difficulty of the material itself. Extraneous load– the burden of the way information is conveyed. Germane load– the burden associated with processing and forming schemas. For BIPA level 1 learners, producing writing in a foreign language requires phonological processing, vocabulary selection, and sentence structure, resulting in a very high cognitive load.

In the context of learning Indonesian for Foreign Speakers (BIPA), level 1 learners are still in the early stages of acquiring the phonological, morphological, and syntactic systems of Indonesian. This results in the emergence of compensatory strategies (Tarone, 1983:66), namely the learners' efforts to overcome their linguistic limitations through simplification, guesswork, or transfer of their first language. Tarone (1983:67) states that compensatory strategies are communication mechanisms used by learners to cover linguistic limitations. Types of strategies include: Approximation– use words that are close in meaning.Word coinage–creating new word forms.Literal translation– translate literally from the first language.Code-switching– mixing languages. Appeal for assistance - ask for help. Stalling or Time-gaining - buy some time.

Many studies on BIPA learners have been conducted, including Septiana, H., & Ardiyanti, W. N. (2021) with the title "Grammatical errors on BIPAleaners in writing practice for beginner level" which analyzed grammatical errors in beginner BIPA learners. The findings showed that the most dominant errors were sentence structure, morphology, and word choice which were influenced by L1 interference. The study emphasized the importance of directed learning for basic structures. Nisa, S. T. (2024) wrote "Kesalahan berbahasa pemelajar BIPA di Philippine Normal University South Luzon". This field research identified errors at the phonological, morphological, syntactic, and semantic levels. The results showed thatleaners often experience confusion in the SPOK structure and the use of complex affixes. Mayrita, H. (2024) wrote about "Issues of writing

skills: Case study of Indonesian errors by BIPAleaners". The research examined BIPA essay writing and found various punctuation errors, incomplete sentence structures, and inappropriate word choices. The researcher involved BIPA teachers to provide a pedagogical perspective.

Rahmawati, S., & Bambang, S. E. M. (2025) with the title" Analisis kesalahan berbahasa dalam menulis teks non-akademik pada mahasiswa BIPA di Jambi" . This analysis shows that BIPA Level 1 learners tend to use compensatory strategies to maintain the fluency of their writing production, even if it means sacrificing accuracy at the phonological/orthographic and syntactic levels. The last one from Julfiyatun, R., & Setiawan, A. (2025) wrote "Perbandingan tulisan antara mahasiswa asing kelas Indonesia 2 dan Indonesia 5 dalam penulisan bahasa Indonesia".This study examines written language errors made by foreignleaners in two BIPA class levels (Indonesia 2 and Indonesia 5). The focus of the study includes errors in words, phrases, clauses, and sentence structures, showing the variation of error types that appear in BIPA writing across different competency levels. The findings help explain how errors develop as class levels increase, as well as the factors that may influence them.

Based on these five studies, a major gap was found, namely that all studies were structural descriptive, not cognitive psycholinguistic. No studies have measured: cognitive load, working memory capacity, real-time writing production processes. No studies have looked at cognitive factors influencing the frequency and types of BIPA writing errors. No experimental studies have tested the causes of errors. All only observed the writing results (product), not the process. No studies have been able to prove a causal relationship between cognitive load and writing errors. No studies have compared different task conditions. No studies have tested the complexity of tasks that affect BIPA writing errors, and no studies have observed cognitive compensation strategies of BIPA learners. Even though compensation strategies are important to see howleaners overcome cognitive limitations when writing.

Therefore, this study aims to examine cognitive load. which is reflected in BIPA level 1 learners' writing errors and compensation strategies used by BIPA level 1 learners. Text-based writing by BIPA learners (descriptive and procedural texts) provides the appropriate data for observing how cognitive load influences language production. Error data demonstrates errors at the phoneme, word, phrase, sentence, and punctuation levels, indicating intense cognitive processing activity and the use of clear compensatory strategies. The benefits include contributing to the study of second language acquisition, particularly regarding cognitive load and compensatory strategies. Practical benefits for BIPA teachers include identifying error patterns and designing appropriate exercises, as well as providing a basis for developing modules for beginners.

METHOD

This research is qualitative research to produce descriptive data in the form of speech, writing and behavior of people observed from an individual, group or organization, then studied from a complete, comprehensive and holistic perspective. Saryono (2010:80) states that qualitative research is research that aims to examine, obtain and explain the quality of the problem topic that has been solved. The object of this research is the result of written text and the research subjects are 9 BIPA Level 1 learners from Japan, Sweden and Armenia.

According to Arikunto (2019:172), the data source is the subject from which the data is obtained. The data source for this study is primary data from the writings of 9 Level 1 BIPAleaners. The data was collected when theleaners wrote descriptive texts about "Myself" and procedural texts on the theme "How to Make Favorite Foods." Data collected consisted of 36 error data. The data were collected in September and November 2025. In this case, the data is in the form of

written results that contain errors at the level of phonemes, words, phrases, sentences and punctuation. Then, secondary data that supports this research such as the KBBI and PUEBI dictionaries.

The data collection technique in this study used documentation techniques. Sugiyono (2018:240) explains that documentation is a data collection technique by examining written documents, images, or someone's monumental works. In this study, the documents used were descriptive texts and procedures. The data collection steps are as follows: Determining relevant text criteria, recording data into a research data table. Finally, the data analysis technique uses the Miles & Huberman model. According to Miles, Huberman, and Saldana (2014), qualitative data analysis is carried out through three simultaneous activity flows, namely: Data Reduction: sorting data that is in accordance with the research focus by identifying errors, classifying errors, explaining the source of errors, concluding the cognitive load that arises, analyzing compensation strategies. Data Presentation: Arranging data in the form of tables or error level categories. Conclusion Drawing: Interpreting data based on cognitive load theory (Sweller, 1994) and compensation strategies (Tarone, 1983: 67).

FINDINGS AND DISCUSSION

In previous research, writing errors were found at the levels of sentence structure, morphology, and word choice, as well as phonological, morphological, syntactic, and semantic levels. Errors included punctuation mistakes, incomplete sentence structures, and inappropriate word choices. The analysis shows that BIPA Level 1 learners tend to use compensatory strategies to maintain the fluency of their writing, even if it means sacrificing accuracy at the phonological/orthographic and syntactic levels. However, in the study, there was more than one compensatory strategy. Previous research also tended to use a single data source, such as essays, but in this study, two types of text data were used, as well as an exploration of the factors causing the writing errors made by BIPA Level 1 leaners. Based on these five studies, a major gap was found, namely that all studies were structural descriptive, not cognitive psycholinguistic. No studies have measured: cognitive load, working memory capacity, real-time writing production processes. No studies have looked at cognitive factors influencing the frequency and types of BIPA writing errors. No experimental studies have tested the causes of errors. All only observed the writing results (product), not the process. No studies have been able to prove a causal relationship between cognitive load and writing errors. No studies have compared different task conditions. No studies have tested the complexity of tasks that affect BIPA writing errors, and no studies have observed cognitive compensation strategies of BIPA learners.

This chapter discusses the analysis of cognitive load and compensation strategies used by BIPA Level 1 learners when writing descriptive and procedural texts.Cognitive load is the amount of information that working memory must process at a time (Swaller, 1994: 257) so that if not handled properly it will cause learning difficulties that arise due to limited working memory capacity. Meanwhile, compensation strategies are communication strategies to overcome linguistic gaps (Dornyei & Scott, 1997: 181) as well as student actions to produce alternative language forms so that the message is still conveyed (Yule, 2010: 201).

The analyzed data can reveal errors that target several linguistic levels. Linguistic levels are the levels of language analysis used to systematically examine the structure and elements of language. Kridalaksana (2008:230) states that linguistic levels are layers of language analysis that include phonology, morphology, syntax, and semantics as the main components in linguistics. Meanwhile, linguistic levels are the structural levels in language that can be analyzed separately, starting from sound units to discourse units (Verhaar, 2010:47).

Table 1. Types of writing errors of BIPA Learners Level 1

No	Error	Repair	Class	Text
1	*Larpu*	*Garpu*	Phoneme	**Procedure Text**
2	*Bada*	*Pada*	Phoneme	**Descriptive Text**
3	*Bunbu*	*Bumbu*	Phoneme	**Procedure Text**
4	*Tanggu*	*Tunggu*	Phoneme	**Procedure Text**
5	*Larapan*	*Sarapan*	Phoneme	**Descriptive Text**
6	*Berajar*	*Belajar*	Phoneme	**Descriptive Text**
7	*Stelah*	*Setelah*	Phoneme	**Procedure Text**
8	*Kanpus*	*Kampus*	Phoneme	**Descriptive Text**
9	*Jarapan*	*Sarapan*	Phoneme	**Descriptive Text**
10	*Masukka*	*Masukkan*	Phoneme	**Procedure Text**
11	*Adok*	*Aduk*	Phoneme	**Procedure Text**
12	*Derapan*	*Delapan*	Phoneme	**Descriptive Text**
13	*Bekrja*	*Bekerja*	Phoneme	**Descriptive Text**
14	*Restran*	*Restoran*	Phoneme	**Descriptive Text**
15	*Budda*	*Buddha*	Phoneme	**Descriptive Text**
16	*Lumah*	*Rumah*	Phoneme	**Descriptive Text**
17	*Sam*	*Setelah*	Word	**Descriptive Text**
18	*Rosok gigi*	*gosok gigi*	Sentence	**Descriptive Text**
19	*Hingga*	*Mendidih*	Word	**Procedure Text**
20	*Karualuga*	*Keluarga*	Word	**Descriptive Text**
21	*Sepeting*	*Seperti*	Word	**Descriptive Text**
22	*Pemilki*	*Pemilik*	Word	**Descriptive Text**

23	*Manching*	*Mincing*	Word	**Descriptive Text**
24	*Berankat*	*Berangkat*	Word	**Descriptive Text**
25	*1 pukul*	*Pukul 1*	Phrase	**Descriptive Text**
26	*Sama*	*Saya*	Word	**Descriptive Text**
27	*12/4-2006*	*12-04-2006*	Sign	**Descriptive Text**
28	*Akan*	*Dan*	Word	**Descriptive Text**
29	*Papaya supermarket*	*Supermarket papaya*	Phrase	**Descriptive Text**
30	*Saya pulang*	*Saya makan*	Sentence	**Descriptive Text**
31	*Lahir dua ribu lima tahun*	*Lahir tahun dua ribu lima*	Sentence	**Descriptive Text**
32	*Ini harian saya*	*Ini aktivitas harian saya*	Sentence	**Descriptive Text**
33	*Pada pagi*	*Pada pagi hari*	Sentence	**Descriptive Text**

(Source: BIPA LEVEL 1 Learners , 2025)

Based on the table above, data errors were found at the linguistic level. The first level is that there are 16 phoneme errors. The data include *larpu → garpu, bada → pada, bunbu → bumbu, tanggu → tunggu, larapan → sarapan, berajar → belajar, stelah → setelah, kanpus → kampus, jarapan → sarapan, masukka → masukkan, adok → aduk, derapan → delapan, bekrja → bekerja, restran → restoran, budda → buddha, lumah → rumah*. These errors occur because BIPA learners mistakenly represent sounds in writing. Phonological errors are the largest errors in the data. Then, there are 9 lexical/word errors, including *sam → setelah, Hingga → mendidih, karualuga → keluarga, Sepeting → seperti, pemilki → pemilik, manching → mancing, berankat → berangkat, sama → saya, akan → dan.* Phrase errors are errors found in 2 pieces of data, namely *1 pukul → pukul 1 and Papaya supermarket → Supermarket Papaya*. The errors stem from first language (L1) transfer, particularly the structure of English phrases. Syntactic/sentence errors were found in 5 pieces of data, namely *Rosok gigi → gosok gig*i, *Saya pulang → saya makan*, *Lahir dua ribu lima tahun →lahir tahun dua ribu lima*, *Ini harian saya →ini aktivitas harian saya, Pada pagi → pada pagi hari*. The verb selection error (pulang → makan) indicates semantic misconceptions and incorrect syntactic order. Finally, a punctuation error was found in 1 piece of data, namely 12/4-2006 → 12-04-2006, caused by a date format mistake due to a lack of knowledge about Indonesian writing conventions and limited normative knowledge (PUEBI).

A. Cognitive Load Arising in Writing

1. Intrinsic Load

Intrinsic load is the cognitive load that comes from the complexity of the material itself — it cannot be changed because it relates to the nature of the Indonesian language being learned.

Table 2. Intrinsic Load on Phoneme Errors

No	***Error***	***Repair***
1	***L****arpu*	***G****arpu*
2	***B****ada*	***P****ada*
3	*Bu****n****bu*	*Bu****m****bu*
4	*T****a****nggu*	*T****u****nggu*
5	***L****arapan*	***S****arapan*
6	*Be****r****ajar*	*Be****la****jar*
7	*Stelah*	*S****e****telah*
8	*Ka****n****pus*	*Ka****m****pus*
9	***J****arapan*	*Sa****r****apan*
10	*Masukka*	*Masukka****n***
11	*Ad****o****k*	*Ad****u****k*
12	*De****r****apan*	*De****l****apan*
13	*Bekrja*	*Bek****e****rja*
14	*Restran*	*Rest****o****ran*
15	*Budda*	*Budd****h****a*
16	***L****umah*	***R****umah*

(Source: BIPA LEVEL 1 Learners, 2025)

The Indonesian language has a phonological system that differs from the learners' native languages, so Level 1 BIPA learners have difficulty distinguishing: consonants g–l, r–l, n–ng, double consonants (-kk-, -ng-), vowels /e/ vs /ə/. Phoneme errors due to phonological cognitive load: learners are not yet able to distinguish the sounds /l/–/g/, /n/–/m/. This indicates a high intrinsic load because processing sounds → letters → words requires a large working memory capacity for beginners. The intrinsic load from phoneme errors is the most commonly found.

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Phoneme errors occur when the internal phonological complexity of a linguistic item exceeds the learner's cognitive processing capacity. Because phonemes are the smallest units of sound, learners must accurately perceive, store, and reproduce each one. When a word contains unfamiliar sounds, complex clusters, or subtle contrasts, the intrinsic load increases—leading to phoneme-level mistakes. In essence, the learner's working memory becomes overloaded by the difficulty of the sound system itself, not by external factors such as teaching method.

Table 3. Intrinsic Load on Lexical Errors

No	***Error***	***Repair***
1	*Sam*	*Setelah*
2	*Hingga*	*Mendidih*
3	*Karualuga*	*Keluarga*
4	*Sepeting*	*Seperti*
5	*Pemilki*	*Pemilik*
6	*Manching*	*Mincing*
7	*Berankat*	*Berangkat*
8	*Sama*	*Saya*
9	*Akan*	*Dan*

(Source: BIPA LEVEL 1 Learners, 2025)

Intrinsic load refers to the *natural cognitive difficulty* inherent in processing a linguistic item. Lexical errors arise when the internal complexity of vocabulary its form, meaning, or usage exceeds the learner's cognitive capacity at a given proficiency level. In the context of lexical errors, intrinsic load is related to the internal difficulty level of the vocabulary itself, such as word meaning, semantic relations, ambiguity, or complexity of form.These words have a complex structure (consonant clusters, nasals, diphthongs, affixes), causing learners to have to process: phonological forms morphological forms affixation rules. As a result, BIPA learners EXPERIENCE a high intrinsic load.

Lexical errors occur because learners must process linguistic units that are inherently complex—either in their sound system, spelling pattern, morphological structure, meaning, or relationship to the learner's first language. These internal complexities create intrinsic load, meaning the learner's working memory becomes overloaded while trying to decode, store, or retrieve the correct lexical form. When learners face vocabulary items that are long, irregular, unfamiliar, or structurally difficult, the processing demands exceed their current linguistic competence. As a result, they simplify, approximate, or replace the target word, which leads to lexical errors.

Table 4. Intrinsic Load on Syntax Errors

No	***Error***	***Repair***	***Class***
1	*12/4-2006*	*12-04-2006*	*Sign*
2	*Papaya supermarket*	*Supermarket papaya*	*Phrase*
3	*1 pukul*	*Pukul 1*	*Phrase*
4	*Rosok gigi*	*gosok gigi*	*Sentence*
5	*Lahir dua ribu lima tahun*	*Lahir tahun dua ribu lima*	*Sentence*
6	*Ini harian saya*	*Ini aktivitas harian saya*	*Sentence*
7	*Pada pagi*	*Pada pagi hari*	*Sentence*

(Source: BIPA LEVEL 1 Learners, 2025)

Indonesian has a sentence order that is different from the learner's L1 , so make them in understanding the structure difficulty. Intrinsic load refers to the cognitive burden inherent in the linguistic structure itself, not from the way the material is presented. In syntax, intrinsic load increases when learners must process complex sentence structures, unfamiliar grammatical rules, or forms that differ significantly from their L1 (first language**).** The following analysis explains how different syntactic errors reflect high intrinsic load.

Learners must recall the conventional order (dd-mm-yyyy)**,** which differs from many L1 date formats. This requires restructuring habitual patterns stored in long-term memory. Indonesian noun phrase ordering places generic noun first**,** then the specific name (Supermarket Papaya). Learners must process the semantic hierarch**y** inside the phrase, which requires conceptual restructuring. Indonesian requires the classifier (*"pukul*") before the numeral. Learners must memorize this fixed syntactic pattern. Indonesian requires a time marker ("*tahun*") before the numeral expression. Learners often transfer L1 patterns where year numbers appear directly without classifiers. Coordinating classifiers + numeral phrases increases syntactic load.

2. Extraneous Load

Extraneous load is the component of cognitive load that results from inefficient instructional methods, non-optimal visual or linguistic presentation, or irrelevant task demands. This load does not contribute to constructing new knowledge or forming schemas; instead, it consumes working memory resources and hinders effective learning. Extraneous load is an additional burden that arises not from the material, but from the way the task is presented or the learning context (Sweller, 1994).

In this case, extraneous load occurs due to:

2.1 Descriptive/Procedural Text Writing Assignments That Are Too Complex for Level 1

The data shows thatleaners are asked to write descriptive texts and procedural texts. For Level 1, this increases the workload because they must choose vocabulary, construct sentences, follow text structure, and maintain coherence.

Data (1)

Saya pulang → Saya makan

Error in word choice*"makan"*instead *"pulang"* not derived from the internal complexity of the language (not intrinsic load), but is strongly influenced by extraneous load, namely additional cognitive load that arises due to the way the task is given, the work situation, or external factors that interfere with the word selection process. In this context, extraneous load arises because of writing assignment pressure, such as limited time, unclear instructions, or demands to complete sentences quickly. These conditions prevent learners from having time to perform a proper lexical search, so they choose the most easily accessible word in short-term memory.

Data (2)

Pada pagi → Pada pagi hari

Time phrase typo*" pada pagi "*without elements*"hari"* does not originate from the difficulty of the structure of the Indonesian language itself (not intrinsic load), but is influenced by extraneous load, namely the cognitive load that arises as a result how assignments are presented, learning conditions, or external pressures which is not relevant to the core material. The phrase*"pagi hari"* is formulaic collocation in Indonesian. When learners only write*" pada pagi "*, this shows that cognitive load from outside the core task inhibits the retrieval of the full form from memory.

2.2. The Influence of Unrecognized Indonesian Language Conventions

Data (3)

12/4-2006→12-04-2006

leaners write the date incorrectly because they don't know the Indonesian format → extraneous load of technical conventions. The influence of Indonesian language conventions that are not yet understood refers to language errors that arise because learners have not fully mastered the standard rules, patterns, or structural customs that apply in Indonesian. These conventions include grammar rules, collocation, word order, phrase patterns, the use of affixes, writing dates, and even formulaic forms that are standard for communication.

2.3. First Language Transfer (Interference)

Data (4)

Papaya supermarket → Supermarket Papaya

This shows additional load becauseleaners must master the rules of their native language and then switch to Indonesian, this mental challenge is called extraneous load.Error*"Papaya supermarket"*reflect negative transfer from the first language (L1), namely the application of the rules or syntactic patterns of the mother tongue into Indonesian. In many languages, such as English, Mandarin, Japanese, or several European languages, the order of naming shops or institutions often follows the pattern Specific name / brand + type of place.

3. Germane Load

Germane load is a cognitive effort productive, namely the mental energy that learners use to build a new scheme, understand Indonesian language patterns, and refine their mental representations. Errors that appear in this category are considered **f**alse positives, because it shows that the learner is trying to process and build a new scheme, even though the results are not yet exact.

Data (5)

Karualuga → Keluarga

Error *"Karualuga"* is a form *approximation*—the learner's efforts to capture the sound patterns of Indonesian based on the input they hear or imagine. This process shows that learners actively trying to form new phonological schemes, but have not yet fully succeeded in mapping the exact sounds.

Data (6)

Ini harian saya → Ini aktivitas harian saya

The error *"Ini harian saya"*shows that learners are trying to follow the syntactic patterns of Indonesian, but have not yet mastered the convention that nouns *daily* must have a parent noun (*daily activities*, *daily schedule*, etc.) The attempt to choose a structure shows that there is formation of new syntactic schemes. Although the form is incorrect, this is an indication of positive interlanguage development, asleaners are attempting to apply Indonesian language patterns and construct noun phrases according to structures they understand.

B. Compensation Strategies

Compensation strategy refers to the set of linguistic and non-linguistic techniques used by BIPA learners to overcome gaps in their knowledge of Indonesian vocabulary, grammar, or expressions during communication. When learners cannot access the exact linguistic form they need, they employ compensation strategies to keep the conversation flowing and maintain communicative effectiveness. In other words, compensation strategies help learners express meaning despite limited proficiency or missing linguistic items. (Tarone, 1983 :67)

Table 5. Compensation Strategies

No	Compensation Strategies	Definition	Data Description Relevant Error	Analysis
1.	**Approximation** **(Using words that are close in meaning/form)**	Learners use words, morphemes, or sounds that are similar or closest to the correct form, but fail to reach an accurate target. This strategy indicates limited access to correct lexical and phonological forms, driven by cognitive load.	**Phoneme:** *larpu = garpu* *bunbu =bumbu* *tanggu = tunggu* *Sepeting = seperti* **Words :** *sam =setelah*	Dominant in Phonemes/Orthography: Errors like *larpu*, *bunbu*, and *tanggu* indicate approximation at the phoneme/orthography level. Learners know the required sounds/letters but have trouble distinguishing/accessing the correct form (for example, difficulty between /r/ and /l/ or /n/ and /m/). Lexical Approximation: Words like sepeting and sam after are attempts to replace forgotten or unknown words with forms that sound similar or are familiar words.
2.	**Literal Translation** **(Translating literally from First Language - L1)**	Learners transfer syntactic structures, word order, or phrases from B1 directly into Indonesian, resulting in unnatural structures in BIPA. This is a strong manifestation of B1 interference.	**Phrase:** *1 pukul =Pukul 1* *Papaya supermarket =Supermarket papaya* **Sentences:** *Lahir dua ribu lima tahun =*	Word Order B1: Error 1 o'clock (Phrase) and Born two thousand five years ago (Sentence) are very common and indicate syntactic interference from languages that place numbers/adjectives before nouns, or different placement of time/year

			Lahir tahun dua ribu lima	expressions than in Indonesian.
3.	**Word Coinage** **(Creating new word forms)**	**Learners create words that do not exist in the target language, usually by incorrectly combining L2 morphemes or by creating words based on assumptions.**	***Words:*** *karualuga = Keluarga* *pemilki = Pemilik* *manching= Mancing*	Errors like 'karualuga' seem to be an attempt to create a word from a remembered sound, or to incorrectly generalize lexical rules, resulting in a new, incorrect word form. Morphological errors such as 'pemilki' and 'manching' can also be categorized as coinage because an incorrect word (morpheme) form has been created.

(Source: BIPA LEVEL 1 Learners , 2025)

Based on Table 5, the most dominant compensation strategies used in the writings of BIPA learners are Approximation: This strategy occurs very frequently at the phoneme/orthography level, indicating that the learners' greatest cognitive load is at the stage of writing sounds (mapping BIPA sounds to the correct graphemes). They choose the phoneme form that is "closest" to the target (for example, larpu for garpu). Second is Literal Translation: This strategy is dominant at the phrase and sentence level, indicating that learners still rely on the syntactic structures of their First Language (L1 interference) when their working memory is overloaded in accessing the correct BIPA rules (for example, 1 pukul and Lahir dua ribu lima tahun). Finally, Word Coinage (creating new word forms) is interpreted as morphological, orthographic, or lexical errors that produce non-standard or non-existent word forms in Indonesian. This analysis shows that Level 1 BIPA learners tend to use compensatory strategies to maintain the fluency of their writing production, even if it means sacrificing accuracy at the phonological/orthographic and syntactic levels.

CONCLUSION

Dominance of Cognitive Load on Phonology/Orthography:The most dominant type of error is at the levelPhonemefollowed by Word and Sentence errors. The high frequency of phoneme errors, including vowel omissions, indicates the presence ofextreme intrinsic cognitive loadAt the stage of mapping sounds to writing (orthography), learners experience difficulty in mapping new auditory input into the correct graphemic system. High cognitive load causes writing production to be unstable and dependent on phonological intuition. Most Prominent Compensation Strategies:Three main compensatory strategies were identified in response to this cognitive load: Approximation. This is the most common strategy, especially at the phoneme level. Learners use

sounds or spellings that closest target due to failure to access the correct form.Literal Translation:This strategy is dominant at the syntactic level (phrases and sentences), indicatingB1 Interferencestrong, where learners move the B1 word order to BIPA.Word Coinage:Occurs when lexical access completely fails, forcing the learner to create new words or use incorrect morphological forms). Accuracy Limitations:Overall, BIPA Level 1 learners tend to use this compensation strategy to maintain fluency in producing text, but sacrificing accuracy on microstructure (phonemes/morphemes) and macrostructure (syntax) Suggestions that can be given for further research are for BIPA teachers.need to emphasize phonology and vocabulary exercises with a multimodal approach.Teaching materialsIt is best to provide examples of phrase and sentence structures that contrast with the learner's native language.Further researchcan expand the analysis to discourse and pragmatic aspects and it is recommended to uselarger sample of learnersand involves statistical analysis to validate the correlation between the frequency of error types and the final writing score. Finally, it can combine analysis of writing data with retrospective interview or think aloud protocol (*think-aloud protocol*) to directly confirm what cognitive and compensatory strategies learners actually use when facing writing difficulties.

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